ORIGINAL

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	PR Docket No. 93-61
Commission's Rules to Adopt	)	RM 8013
Regulations for Automatic Vehicle	)	
Monitoring Systems	)	

TO: The Commission

OPPOSITION OF PINPOINT COMMUNICATIONS, INC. TO PACTEL TELETRAC'S APPLICATION FOR FREEZE

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SUMMARY

Pinpoint Communications, Inc. ("Pinpoint") opposes the Freeze Request of North American Teletrac and Location Technologies, Inc., ("PacTel"). PacTel asks the FCC to freeze further awards of automatic vehicle monitoring ("AVM") authorizations in the 904-912 and 918-926 MHz bands pending the outcome of the recently initiated rulemaking to adopt permanent AVM rules.

PacTel's request is part of a long campaign to obtain retroactive exclusivity in 8 MHz of prime land mobile spectrum. PacTel first obtained approximately one thousand licenses, including some in each of the top 50 markets, to operate at 904-912 MHz and received an extended implementation schedule in 1989. To date, only six systems have been put into operation, and in those markets, PacTel is using only 4 MHz of the 8 MHz assigned to it. Recognizing the fragility of its system, PacTel then petitioned the FCC to change the rules to allow for exclusivity in the 904-912 and 918-926 MHz bands, arguing that this was always the FCC's intent. In releasing its Notice of Proposed Rulemaking in PR Docket No. 93-61, the FCC rejected PacTel's construction of the current rules, confirming that licensing in the 904-912 and 918-926 MHz sub-bands has always been on a shared spectrum basis. Subsequent to the rulemaking petition, PacTel has filed unauthorized "petitions to deny" many of the AVM applications filed with the Commission, sometimes without requisite verifications and often where PacTel has no system in operation -- such that the possibility of any interference is purely speculative -- and, in at least one case, where PacTel does not even have authorization to construct -- such that interference is impossible. The FCC, giving PacTel's filings their due accord, has apparently processed these applications as provided for in the rules. Now, PacTel has sought a blanket freeze, which should be rejected.

As an initial matter, the Freeze Request is premised on a fundamentally incorrect interpretation of the current AVM rules. The FCC recently concluded that it does not find sufficient evidence in any of the Commission's past proceedings or in the interim rules to support PacTel's understanding that the 904-912 and 918-926 MHz were set aside for the assignment of exclusive licenses to wideband hyperbolic multilateration ("HML") systems. Rather, the current rules contemplate spectrum sharing, which is possible and practical both among wideband HML systems, as discussed in the attached affidavit of Pinpoint's Vice President of Design and Development, and between narrowband and wideband systems.

Moreover, a freeze on licensing in the 904-912 and 918-926 MHz sub-bands is not necessary to preserve the flexibility of the Commission in considering and adopting whatever permanent rules it finds will further the public interest. The Commission has available the authority to modify the licenses of any systems, including those of PacTel, authorized under the current rules and require them to migrate to another part of the AVM band.

PacTel's contention that development in AVM systems will be chilled absent a freeze represents only its reluctance to construct its fragile systems without a guarantee of exclusivity. Pinpoint, recognizing the need for a system to operate in a shared spectrum environment, is continuing to invest in its ARRAY™ system technology and has taken the first steps to have its systems implemented.

At bottom, the Commission should not only reject PacTel's Freeze Request, but should remind PacTel of its obligation to cooperate with other licensees to reach mutually satisfactory sharing arrangements. At most, the Freeze Request should be accepted as comments in the recently initiated AVM rulemaking.

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Pinpoint Communications, Inc. ("Pinpoint"), by its attorneys, hereby opposes the Application for Freeze ("Freeze Request") filed by North American Teletrac and Location Technologies, Inc. ("PacTel") in the above-captioned matter. PacTel requests that the Commission refrain from issuing automatic vehicle monitoring ("AVM") licenses and special temporary authorities for AVM facilities in the 904-912 and 918-926 MHz bands pending completion of the rulemaking in Docket No. 93-61.[1]

As amplified herein, a freeze, as requested by PacTel, would not be in the public interest. PacTel has based its request principally on a seriously flawed interpretation of the current rules. Moreover, PacTel has failed to show that

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[1] On April 9, 1993, the Commission released a Notice of Proposed Rulemaking ("NPRM") in this proceeding, 8 F.C.C. Rcd 2502 (1993) ("NPRM"). In the *NPRM*, the FCC seeks to expand the scope of AVM service and redesignate the service as the Location and Monitoring Service ("LMS"). Because PacTel's Freeze Request would affect licensing under the *current* AVM rules, Pinpoint will refer to the service involved as AVM.

irreparable harm will result to it or the Commission's regulatory flexibility in PR Docket No. 93-61 in the absence of a freeze. As a result, the Freeze Request is nothing more than another attempt by PacTel to manipulate the agency's processes retroactively to its exclusive benefit and to stifle the implementation of other, more efficient and robust AVM systems whose operations are fully consonant with the interim rules as the Commission has interpreted them. Accordingly, PacTel's Freeze Request should be denied and processing of the pending license applications of Pinpoint and others should not be delayed.

I. BACKGROUND

On February 9, 1993, Pinpoint filed 20 applications to construct AVM systems in certain markets throughout the country.[2] Pinpoint requested use of the 918-926 MHz band, which is allocated for AVM.[3] As Pinpoint previously has explained to the Commission,[4] these applications seek to implement a technology holding enormous

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[2] File Nos. 347483-34702.

[3] Portions of the frequency band 902-928 MHz were allocated for automatic vehicle monitoring (AVM) systems in 1974. The AVM allocation was divided into two 8 MHz sub-bands for regular authorization and two 1 MHz sub-bands for developmental authorization. 47 C.F.R. § 90.239 (1992). This allocation, however, was made secondary both to industrial, scientific and medical (ISM) equipment and to government radiolocation. In addition, this spectrum is allocated for amateur radio on a secondary basis to AVM and has been opened for -- and increasingly used by -- Part 15 systems. Pinpoint, like PacTel, is unaware of any commercial wideband multilateration system currently in operation in the 918 - 926 MHz sub-band. *See* Affidavit of Cynthia S. Czerner, May 19, 1993, ¶ 2 attached as Exhibit A to the *Freeze Request* ("Czerner Affidavit").

[4] *See* Opposition of Pinpoint Communications, Inc., RM No. 8013, at 3-9 (filed July 23, 1992) ("Pinpoint Opposition").

promise for American industry and consumers. Pinpoint has developed a new technology for monitoring vehicles and other objects called ARRAY™. Not only is ARRAY™ high-capacity, it also -- consistent with the FCC's licensing scheme -- has been designed to be sufficiently robust to share the band with other systems, including other AVM systems, government radiolocation, ISM equipment, and Part 15 devices.

PacTel's Freeze Request petitions the FCC to require the public to forego the benefits of the ARRAY™ system indefinitely. Its petition is simply another step in its multi-year campaign of spectrum speculation:

- First, PacTel obtained licenses for nearly a thousand 904-912 MHz band AVM stations throughout the country,[5] making sure to cover at least all of the top-50 markets.[6]

- Second, in connection with its licenses, PacTel obtained authority to establish high-power, narrowband emitters in the upper wideband segment of 918-926 MHz.

- In May of 1992, PacTel sought rule changes that would afford retroactive exclusivity to its unbuilt systems that had been licensed on a shared spectrum basis.[9]

- Finally, over the past year, PacTel has sought to block other license applications in the band and to overturn or stay those that have been granted.[10]

As the above outline shows, the current Freeze Request underscores PacTel's goal of securing nationwide exclusive authorization in the shared 902-928 MHz AVM environment. In fact, in its Freeze Request, PacTel reiterates most of the arguments made in its rulemaking petition and replies to comments thereon. PacTel claims that sharing by wideband systems is unauthorized, and that its, Pinpoint's, or any other

"misapplication" of those rules. Generally, PacTel asserts that, under the interim rules adopted in 1974, wideband pulse-ranging AVM systems are to be licensed on an exclusive basis in the 904-912 and 918-926 MHz band.[12]

Both the history of AVM licensing in the 904-912 and 918-926 MHz sub-bands and recent Commission explanations makes clear that the agency rejects PacTel's view. The Commission, in its *NPRM*, observed that numerous licenses have "been granted on a non-exclusive basis in the 904-912 MHz and 918-926 MHz bands for both wide and narrowband type systems."[13] The agency went on to reject PacTel's interpretation. Indeed, in so doing, the FCC has "anticipated" many of the arguments made in the Freeze Request:

> [PacTel] contends that the Commission always intended that AVM systems would be licensed on an exclusive basis, implying that the Licensing Division has erred in licensing systems on a non-exclusive basis. . . . *We do not find sufficient evidence in any of the Commission's past proceedings or in the interim rules to support this*

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[11](...continued)
and is considerable interest and investment in existing and new AVM technologies for operation under the current regulatory structure. Since 1990, Pinpoint has invested several million dollars to design and develop a wideband HML AVM technology to operate in the shared spectrum environment of 902-928 MHz. PacTel's apparent reluctance to invest further in its own technology at this time, *see* Czerner Affidavit ¶ 7, reflects not current market conditions but PacTel's belated concerns about its fragile technology's unsuitability for operation in a *shared* spectrum environment. Unable to cope in this arena, PacTel seeks to convince the FCC that spectrum sharing was not contemplated by the interim rules, a contention that the agency has considered and rejected. *See infra* at pp. 507.

[12] *See Freeze Request* at 4-5, 6-8, 12 n.21.

[13] *NPRM* at 2504. AMTECH Corporation has explained in RM 8013 why the licensing of narrowband and wideband systems on a shared spectrum basis in the 904-912 and 918-926 MHz bands has been totally consistent with the interim rules and the FCC's public interest findings when it adopted the rules. Opposition to Petition for Rulemaking of AMTECH Corporation, RM-8013, at 15-24 (filed July 23, 1992).

> *claim.* The interim rules were adopted at a time when very little information was available on AVM systems, including the demand for such services, or on the eventual technology that would be used to provide these services. The interim rules were, therefore, intended to promote the technological and marketplace development of AVM systems in general and to provide an environment of experimentation. To this end *we believe that our licensing methods have reflected this intent.* Additionally, at the time the interim rules were adopted there were no licenses being granted on an exclusive basis in the private land mobile services. Exclusive licenses were not adopted until May, 1974, in PR Docket 18262, 46 FCC 2d 752 (1974) and *there is no evidence in the Report and Order that the Commission was contemplating applying such a new concept to the AVM service.*[14]

The Commission's clear explanation in the NPRM of the interim rules' licensing scheme should almost singlehandedly lead to denial of the Freeze Request.[15]

PacTel indirectly admits that its understanding of the current AVM regulatory structure is at odds with the interpretation of the agency by fashioning an argument that the FCC is not following its own rules.[16] By doing so, PacTel ironically would have the Commission diverge from its own rules.[17] Despite PacTel's tortuous attempts to

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[14] *Id.* at 2504 n.29 (emphasis added).

[15] Pinpoint notes that the Freeze Request is more a Petition for Reconsideration of the *NPRM* or even of the 1974 Report and Order adopting the current rules. As such, the request is either [redacted]

find support for its position by citing at length *comments* filed over twenty years ago, the Commission *always* has interpreted its AVM rules in the way it does now.[18] As the Commission observes, it could not have interpreted its AVM rules to provide for exclusive licensing, because the private land mobile radio rules in effect in 1974, like those in effect now, permitted such licensing only when explicitly provided for.[19] Section 90.239 of the Rules, governing AVM licensing, and its predecessors have never so provided. PacTel's arguments to the contrary therefore ask the FCC to ignore its own regulations.

In conclusion, because the Freeze Request depends wholly on an erroneous construction of the agency's rules, the Freeze Request should be denied. PacTel's attempts to preempt the Commission's rulemaking process should not be countenanced. However, Pinpoint has no objection to the FCC's accepting the Freeze Request as early-filed comments in the pending rulemaking.

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[17](...continued)
Affidavit"), PacTel concedes that "the high-power Teletrac transmissions are narrowband transmission

III. THE FCC'S REGULATORY FLEXIBILITY WILL NOT BE COMPROMISED WITHOUT A FREEZE.

As discussed above, PacTel's Freeze Request relies on an incorrect interpretation of the interim rules. In addition, PacTel offers no persuasive evidence

regulatory tautology. Because of the potential for interference in a shared band, it appears that narrowband licensees have designed their systems with a high degree of robustness. PacTel's failure to do likewise does not justify a freeze. Rather than substantiate the need for relief PacTel seeks, PacTel's concerns, if true, should lead the Commission to examine whether PacTel is fit to retain its licenses.[23]

Second, PacTel contends that licensing multiple wideband systems in the same sub-bands in the same area is not authorized by the current rules and will inherently result in harmful interference to all wideband systems involved.[24] As with narrowband licensing, the Commission has stated that licensing of multiple co-channel wideband licensees is consistent with its interpretation of its rules.[25] Pinpoint, in contrast to PacTel, designed its wideband system taking the need to share spectrum with other

PacTel's unwillingness to share underscores its true intent in the 902-928 MHz band. As Pinpoint has discussed in its comments in RM 8013, PacTel has obtained approximately one thousand licenses in myriad markets, including all of the top 50.[27] PacTel's campaign to obtain retroactive exclusivity is an attempt to lock out its would be competitors and to stifle further technological wideband development. These objectives are in diametric opposition to the FCC's goals and should not be countenanced.[28]

Moreover, a freeze on licensing in the 904-912 and 918-926 MHz sub-bands is not necessary to preserve the flexibility of the Commission in considering and adopting whatever permanent rules it finds will further the public interest. The Commission has the authority to modify the licenses of any systems authorized under the current rules and require them to migrate to another part of the AVM band, if necessary, to further public interest.[29] Indeed, the NPRM proposes as much, with respect to some narrowband systems,[30] and has put all AVM licenses on notice (including PacTel) "that final rules may require any licensee, *regardless of the type of system or frequencies that the system operates on*, to modify its operations."[31]

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[27] Pinpoint Opposition, Attachment A; Pinpoint Reply, Attachment A.

[28] NPRM at 2506.

[29] 47 U.S.C. §§ 154(i) and 303(c) and (r); 47 C.F.R. § 90.173(b).

[30] *NPRM* at 2505.

[31] *Id.* at 2507 n. 56 (emphasis added).

PacTel's third contention in support of the Freeze Request is that if future grants of authority are not frozen, development of AVM systems will be chilled. As

ridiculous and do not rebut the evidence that, although the interim rules may undergo modification in the *NPRM* in certain respects, the current licensing regime is not a deterrent to AVM investment.

PacTel's characterization, like almost everything it has submitted to the FCC in

interfere with PacTel's own systems, because of distance from PacTel's licensed sites.[35] Other objections have been filed without the requisite verifications.[36] More recently, PacTel has filed an application for review and petition for stay relying on an interpretation of the current rules that the Commission explicitly rejects.[37] Here, PacTel seeks a freeze on similarly dubious grounds.

Given this disruptive and strategic manipulation of the administrative process, the FCC should order PacTel to stop filing objections to other license applications in what is still and is likely to remain shared spectrum. Rather, PacTel should be reminded, consistent with the FCC's rules to which its licenses oblige it, to cooperate in the sharing of spectrum and to seek mutually agreeable solutions.[38]

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[35] *See, e.g.*, File No. 296370 (Application of Union Pacific Railroad for facilities at 911.5 and 918.5 MHz in Rock Springs, Wyoming.) Counsel for Pinpoint has done a database search for licenses in the 904-912 MHz band within 60 miles of the proposed Union Pacific site and has found no PacTel authorizations listed. PacTel's closest operational facility would appear to be in Los Angeles, Czerner Affidavit ¶ 2, hundreds of miles away.

[36] *See, e.g.*, PacTel Petition to Deny, File Nos. 347483-347502 (applications of Pinpoint). PacTel only provided an affidavit in response to Pinpoint's Opposition to Informal Objection. Pinpoint notes that the only possible interference Pinpoint's wideband signals could cause to PacTel's systems, where they are constructed, would be to its high-power, narrowband forward link.

[37] Besides its lack of substantiation, the application for review is largely for licenses granted months before PacTel sought review. Accordingly, the application is untimely with respect to the majority of the authorizations at issue under Sections 1.4(b)(5) and 1.104(b) of the Commission's rules.

[38] *See* 47 C.F.R. § 90.173(b).

V. CONCLUSION

For the forgoing reasons, Pinpoint respectfully submits that PacTel's Freeze Request should be denied. In the alternative, the Freeze Request should be considered as comments on the *NPRM*.

Respectfully submitted,

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TO: The Commission

AFFIDAVIT OF LOUIS JANDRELL

District of Columbia	)	
	)	ss:
City of Washington	)	

Louis H.M. Jandrell, being duly sworn, deposes and says:

1. I am Vice President of Design and Development of Pinpoint Communications, Inc. ("Pinpoint"), an innovator in automatic vehicle monitoring ("AVM") technology. Pinpoint has twenty applications pending to operate AVM systems in the 918-926 MHz band, as well as special temporary authority to conduct experiments in the 902-928 MHz band. I have reviewed the Application for Freeze filed by North American Teletrac and Location Technologies, Inc. ("PacTel") in the above-captioned matter, and the Affidavit of Dr. Charles L. Jackson ("Jackson Affidavit") appended thereto.

2. I find the analysis of spectrum sharing among wideband hyperbolic multilateration ("HML") AVM systems in the 904-912 and 918-926 MHz sub-bands contained in the Jackson Affidavit to be

seriously deficient and diversionary. Dr. Jackson's critique is based on incorrect assumptions, which, although they lead to the conclusion that sharing is extremely difficult, if not impossible, in the 904-912 and 918-926 MHz sub-bands, amount to an indirect demonstration that the PacTel Teletrac system, and not wideband HML AVM systems in general, is incapable of sharing. As I discuss below, this analysis is wrong and a freeze would disserve the public interest.

3. My qualifications are as follows. I have a Bachelor of Science degree in Electrical Engineering from the University of the Witwatersrand, Johannesburg, South Africa. I co-founded Pinpoint in 1990, after developing the technological underpinnings for a robust, high-capacity HML AVM system in the United States operating in the shared-use 902-928 MHz band, and upon realizing the need for advanced automatic vehicle monitoring in this country.

4. I am also the President of Idea Matrix, Inc., which I founded as The Matrix Company in 1984. Idea Matrix, Inc., a Texas company, provides consulting services in many areas of radio communications and electronic product design and development. Before 1984, I had served as Product Development Manager of Astec Electronics in Santa Clara, California, and Hong Kong, as New Product Development Manager at Sunflex Company for two years in San Rafael, California, and as an electrical engineer, specializing in industrial systems engineering, for several other companies from 1965 to 1981.

5. The Jackson Affidavit, which was authored to accompany PacTel's reply to Pinpoint's opposition to PacTel's informal objection to Pinpoint's HML AVM system applications, has been utilized most recently to support PacTel's application for a freeze. PacTel and Dr. Jackson contend that "'sharing' between wideband systems is impractical at best and impossible at worst." Freeze Request at 9. As I explain herein, sharing is both possible and is also practical if licensees cooperate as contemplated by the Commission's Rules governing AVM. Moreover, although I am not qualified to address the merits of Dr. Jackson's administrative law discussion at paragraphs 8 to 11 of his Affidavit, I understand that the FCC in its recent Notice of Proposed Rulemaking in PR Docket No. 93-61 stated that AVM licensing in the 904-912 and 918-926 MHz bands on a non-exclusion basis is consistent with the intent behind the current AVM rules.

6. The interim rules do, in a general way, delineate the obligations of co-channel system operators in a service area, contrary to the contentions in Jackson Affidavit. Specifically, Section 90.173 of the Rules requires AVM licensees to cooperate in the sharing of frequencies so as to resolve any potential instances of harmful interference. This section also empowers the FCC to step in to specify the technological mechanism for sharing, if need be. Consequently, while the rules do not explicitly delineate a single sharing mechanism, they are flexible enough to accommodate sharing both in principle and in practice.

7. Although the current interim rules do provide for sharing in this manner, Pinpoint does support the promulgation of rule changes that would adopt more specific technical parameters for sharing among widebands systems. Pinpoint believes that such regulatory modification would facilitate the most efficient use of the band and prevent participants such as PacTel from employing tactical maneuvers such as the instant request for freeze in order to frustrate competition.

8. Dr. Jackson's assertions that sharing is impractical are grounded on deficient assumptions. In paragraph 12 he states that "[a]ny system for channel sharing requires common knowledge and shared technology." The implication is that all systems in a sharing scheme must be the same in all significant particulars. While, on some level there must be common knowledge in order to make sharing work, i.e., the sharers must each know when it is proper for each to use the spectrum, it is not necessary that the technology of the systems be identical in any fundamental sense.

9. From a technological perspective, each system in a sharing scheme can utilize its own design provided that the mechanism for access to the spectrum is agreed upon in advance. In addition, all of the systems, each of which may have its own clock, must have their clocks synchronized to the same common standard, such as, for example, that available through the GPS system or WWVB broadcasts. Neither of these requirements necessitates identical technological approaches to AVM, only that certain limited

characteristics be shared so as to facilitate sharing.

10. The Jackson Affidavit states at paragraph 13 that sharing rules "should establish protocols for detecting the presence of transmissions of other systems and avoiding interference." Dr. Jackson here assumes that sharing must be achieved through a "carrier detect" mechanism, which would require "each licensee to monitor a channel and insure that it is vacant before transmitting on that channel." Jackson Affidavit, ¶ 14. By this discussion, Dr. Jackson sets up a "straw man argument." "Carrier sense" is a primitive sharing mechanism widely used, for example, in wired local area computer-data networks. With these systems, the delays between seizing the channel and getting feedback that the seizure has been successful/unsuccessful is very small compared to the time for a typical transaction. However, in the context of high-capacity AVM systems with large and variable distance-induced delays between communicating points, in relation to the typical time to determine a position fix, carrier-sense schemes suffer from an unacceptably high probability of wasteful collisions. This is particularly true in a half-duplex operation, where there is no reliable method to inform the interferer of his interference until it is much too late. Pinpoint has never proposed the use of this method. Accordingly, Dr. Jackson's discussion in paragraphs 13-15 of his affidavit is a red herring to the current debate.

11. The Jackson Affidavit goes on to critique sharing on a time division ("TDMA") basis, but this analysis is based upon

unnecessarily restrictive or seriously flawed assumptions and does not provide a genuinely useful description of the issues. The crux of Dr. Jackson's argument is his statement in paragraph 16 of the Jackson Affidavit that "[dedicated] connections cannot be counted on in a service with the technical flexibility of the AVM service." This thesis is what Dr. Jackson seeks to prove in paragraphs 17 to

12. Unfortunately, his critique is riddled with inaccurate statements and, rather than constituting an effort to explore the engineering issues involved, appears to be a veiled yet unabashed defense of PacTel's request for exclusivity for its fragile system.

13. The Jackson Affidavit purports to identify four readily practical problems with implementing TDMA among wideband HML AVM systems. The first is that "the time scales of the two systems may not mesh." (¶ 17) However, TDMA need not require "time scales to mesh," as PacTel proposes. While equity might argue for such a position, there is no physical or engineering requirement in a TDMA arrangement for two systems to get the same amount of air time. Even if it appears to be true now that such systems should have the same amount of air time, that can always change in the future.

14. Rather than a meshing of time scales, what would be required in a TDMA are two things: (1) synchronization of system clocks through a common standard, as noted earlier, and (2) some agreed-upon mechanism to control how access to air time would be scheduled, either on a periodic basis or on something approaching an as-needed-if-available basis. This control may or may not